NATIONAL TRANSPORTATION SAFETY BOARD
Office of Aviation Safety
Ashburn, Virginia 20147

March 20, 2011

Airworthiness Group Chairman's Factual Report

Addendum 3

WPR09MA159

ACCIDENT

Operator:	Eagle Cap Leasing Inc.
Location:	Butte, Montana
Date:	March 22, 2009
Time:	1430 Mountain Daylight Time (MDT)
Aircraft:	Pilatus PC12/45, N128CM

SUMMARY

On March 22, 2009, at 1430 mountain daylight time, a Pilatus PC-12/45, N128CM, descended to ground impact near the approach end of runway 33 at the Bert Mooney Airport, Butte, Montana. The airplane was owned and operated by Eagle Cap Leasing Inc., of Enterprise, Oregon, as a personal transportation flight under the provisions of 14 Code of Federal Regulations Part 91. The airplane was destroyed in the collision sequence and post crash fire. All 14 persons onboard the airplane were killed in the accident and there were no reported ground injuries. The flight departed Oroville, California, at 1210 mountain daylight time on an instrument flight rules (IFR) flight plan and clearance destined for Gallatin Field, Bozeman, Montana. The airplane was diverting to Butte at the time of the accident. Visual meteorological conditions prevailed at both the Bozeman and Butte airports.

ADDITIONS

D.3.2.1.1 Autopilot System

The accident airplane was equipped with a Bendix/King KFC 321 Digital Automatic Flight Control System (AFCS). The AFCS was capable of providing control inputs for the pitch, roll, and yaw axis, and provided direct control inputs (via servo motors) to the respective control surfaces. The AFCS was also incorporated an automatic electric pitch trim function, designed off-load control forces from the pitch servo. Additionally, an automatic rudder trim relief function was designed to relive pilot workload by automatically reducing rudder control input forces by operating the rudder trim. No aileron auto trim function was available.

The pilot interacted with the AFCS via a mode controller, which was installed in the top center portion of the instrument panel. Some of the available AFCS control modes included: HDG (heading select mode); NAV (navigation mode); APR (approach mode); ALT (altitude hold mode); and IAS (indicated airspeed hold mode); as well as YD (yaw damper and rudder trim relief). The AFCS autopilot was activated/deactivated by depressing the AP button on the mode controller. Depressing the AP button to activate the autopilot, also engaged YD; but depressing the AP button to deactivate the autopilot did not disengage YD, but instead required the pilot to disengage YD mode by specifically depressing the YD button. The pilot could also disengage the autopilot (but not YD) by utilizing the manual trim engage switch mounted on each control yoke. Depressing the autopilot disconnect switch, also located on each control yoke, would disengage both the autopilot and YD.

The autopilot could also be automatically disengaged by the stall warning system if the stick shaker speed was approached or in the event of an aileron miss-trim. Additionally, the PC-12 Aircraft Flight Manual stated, "NOTE – In the case of an aileron out of trim force for longer than 6 seconds, a steady yellow, ROLL annunciation will appear on the [Electronic Attitude Director Indicator]. The annunciation will flash after 10 seconds if not attended to. Failure to re-trim at this point may result in either roll forces exceeding the authority of the autopilot or a sharp rolling moment upon autopilot disconnect. Autopilot operation in the presence of a continuing roll annunciation should not be continued." An autopilot automatic disengagement would occur in the presence of an un-commanded deviation in the airplane's flight path due to a system malfunction. If for any reason the airplane moved rapidly in pitch or roll, the autopilot could disconnect automatically.